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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,027	11/07/2001	Yoichi Oikawa	826.1768	4751

21171 7590 10/21/2003

STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

ALLEN, DENISE S

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 10/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/986,027

Applicant(s)

OIKAWA, YOICHI

Examiner

Denise S Allen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2001 and 25 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

- 11) ☒ The proposed drawing correction filed on 25 July 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

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PTOL-326 (Rev. 04-01)

Office Action Summary

Part of Paper No. 7

DETAILED ACTION

Drawings

The proposed drawing corrections were received on July 25, 2003. These drawing corrections are approved by the examiner.

The substitute formal drawings were received on July 25, 2003. These drawings are acceptable to the examiner.

Response to Amendment

In light of the Applicant's amendment to claim 5 on July 25, 2003 (paper #6), the objection to claim 5 in the Office Action on April 23, 2003 (paper #4) has been withdrawn.

Response to Arguments

In the Applicant's response on July 25, 2003 (paper #6), the Applicant argues with respect to claims 1 and 4 – 9, that Lemoff et al fails to teach or reasonably suggest controlling an optical switch based on one or more oscillating electrical signals as recited in amended claims 1, 2, and 4 – 9 (pages 10 – 11). This argument has been fully considered and not found to be persuasive.

The examiner respectfully disagrees with the Applicant's argument. Lemoff et al teaches that both the application voltage and the additional signal are oscillating electrical signals (column 6 lines 36 – 40). Lemoff et al refers to the additional signal as "an electrical alignment signal". Additionally, Lemoff et al teaches the detection device detects a signal component in light reflected on the mirror when the application voltage is applied (column 6 lines 11 – 17 and 40 – 42). Lemoff et al refers to the signal component as "the alignment signal" and the light reflected on the mirror as "the alignment beam".

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The Applicant further argues with respect to claim 3, that Neukermans et al teaches the use of an electromechanical response for control of a switch instead of an electro-optical response (page 11). This argument has been fully considered and found to be persuasive. The Examiner agrees that the teaching of Neukermans et al is electromechanical in nature.

The rejection of claim 3 under 35 U.S.C. 103(a) as being unpatentable over Lemoff et al in view of Neukermans et al in the Office Action on April 23, 2003 (paper #4) has been withdrawn.

Claim Objections

Claim 5 is objected to because of the following informalities: the limitations “the third additional signal” (line 23), “the fourth additional signal” (line 25), “the third frequency” (line 36), and “the fourth frequency” (line 38) lack antecedent basis because they have not been previously recited in claim 5. Suggested correction: add limitations describing the third and fourth oscillations devices similar to claim 8. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 3 – 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Lemoff et al (US 6,539,142).

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Regarding claims 1, 6, and 9, Lemoff et al teaches an optical switch (Figure 3 reference 40), comprising: a mirror (reference 46), an inclination angle of which varies depending on an application voltage (column 5 lines 55 – 57); a driver device (reference 52) applying the application voltage to the mirror; an oscillation device (reference 64) generating an additional signal of a prescribed frequency (column 6 lines 36 – 40); a superimposition device (reference 64) superimposing the additional signal on the application voltage; a detection device (reference 62) detecting a signal component of the prescribed frequency (column 6 lines 40 – 42) which appears in light (reference 58) reflected on the mirror when the application voltage is applied to the mirror (column 6 lines 19 – 26 and 40 – 42); and a control device (reference 62) controlling the application voltage based on the detected signal component (column 6 lines 40 – 42).

Regarding claim 3, Lemoff et al teaches the oscillation device generates an additional signal of a frequency higher than a mechanical resonance frequency of the mirror (column 6 lines 38 – 40).

Regarding claims 4 and 7, Lemoff et al teaches an optical switch as described above and further teaches an inclination angle in a second direction of the mirror which varies depending on a second application voltage (column 6 lines 42 – 46); a second driver device (reference 52) applying the second application voltage to the mirror; a second oscillation device (reference 64) generating a second additional signal of a second frequency (column 6 lines 36 – 40 and 42 – 46); a second superimposition device (reference 64) superimposing the second additional signal on the second application voltage; the detection device detecting signal components of the second frequency (column 6 lines 40 – 42) which appear in light (reference 58) reflected on the mirror when the second application voltage is applied to the mirror (column 6 lines 19 – 26 and

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40 - 46); and a second control device (reference 62) controlling the second application voltage based on the detected signal component of the second frequency (column 6 lines 40 - 46).

Regarding claims 5 and 8, Lemoff et al teaches an optical switch as described above wherein the mirror described is a former-stage mirror. Lemoff et al further teaches a latter-stage mirror (reference 48), an inclination angle in a third direction of which varies depending on a third application voltage and an inclination angle in a fourth direction of which varies depending on a fourth application voltage (column 6 lines 42 - 46); a third driver device (reference 53) applying the third application voltage to the latter mirror; a fourth driver device (reference 53) applying the fourth application voltage to the latter mirror; a third oscillation device (reference 64) generating a third additional signal of a third frequency (column 6 lines 36 - 40 and 42 - 46); a fourth oscillation device (reference 64) generating a fourth additional signal of a fourth frequency (column 6 lines 36 - 40 and 42 - 46); a third superimposition device (reference 64) superimposing the third additional signal on the third application voltage; a fourth superimposition device (reference 64) superimposing the fourth additional signal on the fourth application voltage; a detection device (reference 62) detecting respective signal components of the third and fourth frequencies (column 6 lines 40 - 42) which appear in light (reference 58) reflected on the latter-stage mirror when the third and fourth application voltages are applied to the latter-stage mirror (column 6 lines 19 - 26 and 40 - 46); and a third control device (reference 64) controlling the third application voltage based on the detected signal component of the third frequency (column 6 lines 40 - 46); and a fourth control device (reference 64) controlling the fourth application voltage based on the detected signal component of the fourth frequency (column 6 lines 40 - 46).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lemoff et al.

Lemoff et al teaches an optical switch as described above. Lemoff et al does not teach a storage device storing at least one of information about the application voltage and information about optical-coupling efficiency of the optical switch; and a notification device notifying a prescribed notification addressee of the information stored in the storage device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a computer with a storage device (memory) and a notification device (monitor) connected to the control device of the optical switch of Lemoff et al in order to record and monitor the performance of the optical switch over time.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise S Allen whose telephone number is (703) 305-7407. The examiner can normally be reached on Monday - Friday, 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on (703) 305-0024. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

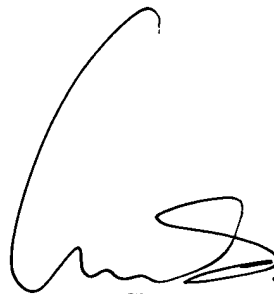
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



dsa

Denise S Allen
Examiner
Art Unit 2872



Audrey Chang
Primary Examiner
Technology Center 2800